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ABSTRACTS

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140. PALEOZOIC STRATABOUND TH-U CONGLOMERATE AND U-LATOSOL TYPES OF UM BOGMA REGION, WEST CENTRAL SINAI, EGYPT; THEIR GEOLOGICAL SETTING AND MODE OF FORMATION

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The radioactive anomalies of the Paleozoic sequences of Um Bogma region, West Central Sinai, Egypt, are confined to two main stratigraphic horizons representing two genetic types:-

(a) Cambrian stratabound Th-U conglomerate type (up to 410-600 ppm Th and 170-238 ppm U), building up the basal polymictic conglomerate unit of the proximal fluvial clastics of the Cambrian sequence. The radioactivity of these conglomerates is related to the concentration of detrital radioactive mineral grains(uranothorite, thorite, xenotime and metamict zircon), derived from nearby exposed Precambrian igneous and metamorphic rocks, and shortly transported together with other components into the upper reaches of braided streams. Decomposition of the radioactive heavy grains during transportation, deposition and diagenesis is responsible for the redistribution of Th and U in the iron oxyhydroxide matrix and hematite cement of the host rocks. The host conglomerates of this type could be relatively more uraniferous and of economic interest if they are traced far from weathering and oxidation zones, especially if secondary uranium minerals could be found on the surface.

(b) Carboniferous stratabound unconformity (paleokarst)- related U and Cu latosol, building up the upper eluvial horizon of the intra-Carboniferous paleokarst profile, separate the marine Carboniferous carbonate sequences. U and Cu sulphates, phosphates, vanadates, carbonates and Cu halides with kaolinite, gibbsite, alunite and jarosite are concentrated in the uppermost organic-rich part of the eluvial horizon. The formation of these U and Cu minerals is attributed to pedogenic processes involving upward migration and concentration of the mobile cations and anions during the general desiccation and dehydration of the laterite products under arid to semi-arid paleoclimate. This intra-Carboniferous paleokarst profile and its uppermost radioactive organic-rich subhorizon, could be used as a good guide for more uraniferous deposits, specially in the central part of Um Bogma region.

141. MINERALOGY AND GEOCHEMISTRY OF THE CARBONIFEROUS STRATABOUND U- KARST LATOSOL OF UM BOGMA REGION, WEST CENTRAL SINAI, EGYPT

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The intra-Carboniferous Paleokarst profile of Um Bogma region comprises a lower karstified dolostone, a middle subsoil (illuvial)horizon and an upper latosol (eluvial) horizon. The latter is further subdivided into three subhorizons, based upon their lithological characters, paragenesis and chemical composition. These are: the lower laminated ochreous siltstone subhorizon, the middle nodular kaolinite and alunite subhorizon, the upper organic-rich subhorizon. The uppermost subhorizon is formed entirely of organic matter together with kaolinite, gibbsite, alunite and U and Cu sulphates, phosphates, vanadates, carbonates and Cu halides.

Two main progressive pedogenic processes have been taking place during the periods of active weathering under humid conditions including: (a) carbonate dissolution, hydrolysis and enrichment of Fe and Al and formation of kaolinitic latosol along the surface of the paleokarst profile with Mn separation and downward migration and concentration in the subsoil horizon and (b) secondary bauxitization during continuous desilication and hydrolysis of the formed kaolinite. These processes were followed by a late stage of alunitization and formation of evaporitic U and Cu minerals during the general desiccation of the laterite products under arid to semi-arid climate.

It is concluded that, the geochemical behaviour of U and Cu and other mobile cations and anions during the course of weathering, the physico-chemical conditions of the medium, together with the amount of C02 in the system and concentration of organic matter are the most important parameters controlling the concentration of U and Cu minerals in the upper organic-rich subhorizon of the paleokarst profile.

142. QUATERNARY STRATIFORM FLUVIATILE AND LATERTIC MANGANESE DEPOSITS AT SHERM ELSHEIKH, SOUTHERN SINAI, EGYPT

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Field, sedimentological, petrographical and mineralogical studies are carried out on the Quaternary stratiform manganiferous clastics occurring around Sherm El-Sheikh and Sherm El-Moiya, Sinai, Egypt. These sediments represent a braided plain deposit with a regional paleoslope dipping S & SW. Along this slope, the outcrop exposes manganiferous bouldery cross-bedded conglomerates and sandstones in the upstream, grading gradually into proper lateritic flood plain manganiferous mudstone facies towards south. The composition and facies characteristics of this stratiform